

THE RAVEN

BACK GROUNG OF THE INVENTION

[0002] Using two double sideband full carrier, AM transmitters, to produce AM stereo and one other transmitter either AM or NBFM in the AM band to produce the slow scan video on the AM band, 8 kHz down from the main audio carrier, and with the use of a diplexer, an antenna tuner and also antenna stacker, earth grounded, there is good separation of the AM station's audio and video within a 15 kHz bandwidth.

[0003] Single sideband suppress carrier will work well for the slow scan video also, but like NBFM, one would need special receivers for those two modulations.

[0004] Using NBFM in the AM band will enable the VC-H1 to use the FAST FM mode; the fax like beeps will be very faint over the AM receiver if tuned to the video frequency.

[0007] This AM video system is different from Mr. Kahn's AM AUDIO/DATA SYSTEM because the data is embedded in the audio.

[0008] SSTV will not mix with audio, that is why there is a frequency difference in the RAVEN SYSTEM, and also the FCC does not consider SSTV picture information as data.

[0009] The auto switch LM555 timing circuit (designed and built by this inventor) enables the transmitter to broadcast one to two pictures per minute.

Right now the IBOC DIGITAL AM SYSTEM requires a channel bandwidth of 30 kHz, but is prohibited from operating at night, because of adjacent channel interference on the AM band, and IBOC-HD offers no video as of yet!!!

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SUMMARY OF THE INVENTION

[0010] Present invention enables the Audio and SLOW SCAN TV signals to be transmitted over the same 15 kHz wide channel on the AM band. FOR EXAMPLE: 690 kHz to 705 kHz in which the Video Carrier is at 692 kHz @ BW of 4 kHz (690 kHz to 694 kHz) and the Audio Carrier is at 700 kHz @ BW of 10 kHz (695 kHz to 705 kHz); END OF EXAMPLE. *PLEASE NOTE 15 kHz wide at 700 kHz can also mean 692.5 kHz to 707.5 kHz.

An update to the PREVIOUS EXAMPLE MENTIONED is: the Video Carrier could just as easily be put at, 708 kHz (8 kHz above the Main Audio Carrier), END OF THIS EXAMPLE.

[0011] AN ANOTHER EXAMPLE for the Video Carrier would be: an analog AM receiver with an analog tuner can be directly tuned to 692 kHz.

But for an analog AM receiver with a digital tuner, the receiver would be tuned to 690 kHz for the Video, which would be, 10 kHz down from the Main Audio Carrier on that AM receiver.

But if the Video is 8 kHz above the Audio Carrier, then the digital tuner would be tuned 10 kHz above @ 710 kHz in this Example.

We can start by listening for the fax like beeps, before plugging in a Slow Scan Converter into the headphone jack of the AM receiver, being used for the Video.

The same analog AM receiver used to receive the Video can tune in the Audio when tuned to 700 kHz; END OF EXAMPLE.

[0012] A Walkman style RCA AM/ FM stereo cassette player # RP-1872C was used to check the on air frequencies, also used was a radio shack DMM 22-174B set for Hz kHz and a GW-INSTEK Digital Frequency Counter # GCF-8010H to check the frequency.

[0013] All transmitters used are hobby broadcast equipment and are of the name brands: RAMSEY; and NORTH COUNTRY RADIO.

[0014] Three receivers were used; two for receiving the stereo in the same manner used for receiving the Kahn AM Stereo System, Except in the case of THE RAVEN, The right channel receiver is tuned right on the audio carrier frequency, due to the phase lock loop of the AM 25 transmitter, the left channel receiver is tuned slightly off to the left of the audio carrier frequency.

[0015] Now the third AM receiver needs the used of a Slow Scan Converter like the KENWOOD VC-H1, Such as the one used at the transmitter site, the only difference being the VC-H1 at the transmitter site, is in the AUTO TRANSMIT (once every three minutes) MODE, which is too slow for commercial broadcast use. A 555 timing circuit was built to cause the AUTO TRANSMIT MODE to transmit a new picture every minute, also with * LIVE ACTION CAPTURE* built in by KENWOOD, there is no need to stop the action or pose, to send a new picture, furthermore the VC-H1 at the transmitter site will not receive, when it is in the AUTO TRANSMIT MODE, therefore, there will be no video interference from other radio stations using the same system.

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BRIEF DISCRIPTION OF THE DRAWINGS AND THE PREFERRED EMBODIMENTS

[0016] FIG.1. Block diagram of THE RAVEN SYSTEM

- 1) [0017] other drawings are schematics of: – 45degrees; + 45 degrees right and left channel phase networks; KENWOOD VC-H1 Cable setups; LM 555 auto switch ;one notarized log of three drawings on one page: (A) the testing of audio on the AM band; (B) a test of an AM picture on the AM band ;(C) a test of a FM picture on the AM band. (All tests were done with audio on the AM band).

[0018] One, VHS Tape of on air operations of THE RAVEN.

[0019] “Omitted”, in lieu of a Divisional Patent per Examiner.

[0020] After the Ramsey STC-1 Stereo Limiter: A Ramsey AM -1 transmitter with a disabled oscillator (C7, Q6, AND Q5 have been removed).

[0021] the Ramsey AM PRO-25 transmitter has its ANT. OUT port connected to the RF amplifier of the AM-1 transmitter, via R10, to produce (ISB) AM stereo.

[0022] also in the AM PRO-25 another Q9 (collector to collector, base to base and emitter to emitter) in parallel with the original Q9, both with cooling fins.

[0023] R23 was changed to a variable resistor from 1 k ohms to 10 k ohm. R5 was changed from a fixed 1 k ohm resistor to a 10 k ohms variable resistor and lastly, a 12

volt cooling fan from an old computer was added, for extra strong cooling; A Kenwood VC-H1 inputs into a de-emphasis network that inputs into an AM-88, and that AM-88's output, is then coupled into an AM-1 filter network, whose L3 is unchanged but C12 and C14 values have been changed from .0022 UF TO .02 UF, to obtain the band width of 4 kHz and that output is then coupled to the main antenna along with the output of the stereo signal from the AM 1- AM 25 transmitter combination.

Both the audio and the video transmitter system use the same antenna with no loss of power due to the antenna tuner and a diplexer.

[0024] An AM-88 transmitter can be used to transmit AM pictures, as well as FM pictures in the AM band.

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RECOMMENDED POWER LEVELS FOR AM / AM STEREO AND MINUTE-BY-MINUTE STILL LIFE PICTURES COMMERCIAL BROADCAST U.S. AM RADIO STATIONS

AUDIO

VIDEO

NATIONAL / REGIONAL

50 kW

5 kW

25 kW

10 kW

REGIONAL / LOCAL

5 kW

1 kW

2.5 kW

1 kW

LOCAL / COMMUNITY

500 w

100 w

250 w

100 w

LOW POWER AM PART - 73

99 w	10 w
50 w	
35 w	
25 w	
10 w	
5 w	
2 w	

HOBBY BROADCAST AM PART – 15

1 w	1w
.75 W	
.25 W	

[0025] The video power recommendations are for, AM pictures. Antenna height should be considered for FM pictures, such as; if the antenna height is 1160 feet then the maximum video power would be any where from 3 kW to 6 kW, for commercial broadcasting.

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